VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

The first two paragraphs on page 1 have been amended as follows:

The present invention relates to a polymer with increased adhesion to substrate and a resist composition containing the same. More particularly, the present invention relates to a novel polymer that is useful for preparation of a photoresist suitable for fine works using various radiations, such as ~~far infrared rays, such as~~ KrF or ArF excimer laser, X-rays such as synchrotron radiation, and charged particle rays such as electron beam, and a resist composition containing the polymer.

With an increase in the integration density of semiconductor devices, there is a demand for super-fine patterns of which the size is 0.13 μm or smaller in the manufacture of very large scale integration(VLSI). Accordingly, the radiations used as a conventional exposure source, such as g- or i-ray, have become replaced by those that have a shorter wavelength, and lithographic techniques using ~~far ultraviolet rays (e.g., KrF or ArF excimer laser)~~, X-ray or electron beam have lately attracted considerable attention. Especially, an ArF excimer laser is a most promising exposure source in the future lithography requiring a pattern size of 0.13 μm or smaller.

On page 3, please replace the paragraph beginning at line 3 with the following:

-- It is therefore an object of the present invention to provide a polymer for use in a chemically amplified resist, which may be exposed to ~~far ultraviolet rays such as~~ KrF or ArF excimer laser and have low dependence on and good adhesion to substrate, high transparency in the wavelength range of the above radiation, strong resistance to dry etching, and excellencies in sensitivity, resolution and developability. --

On page 8, the paragraph beginning at line 9 has been amended as follows:

To obtain a uniform and flat photoresist coating, the resist composition of the present invention has to be dissolved in a solvent that shows an appropriate evaporation rate and viscosity. Examples of such a solvent may include ethyleneglycol monomethyl ether, ethyleneglycol monoethyl ether, ethyleneglycol monopropyl ether, methylcellosolve acetate, ethylcellosolve acetate, propyleneglycol monomethyl ether acetate, propyleneglycol monoethyl ether acetate, propyleneglycol monopropyl ether acetate, methyl isopropyl ketone, cyclohexanone, methyl 2-hydroxypropionate, ethyl 2-hydroxypropionate, 2-heptanone, ethyl lactate, and ~~γ~~-butyrolactone. If necessary, they may be used alone or in combinations of at least two

species.

On page 9, the paragraph beginning at line 2 has been amended as follows:

Then, selective irradiation is performed on the coated photoresist film to give fine patterns. The radiation as used herein may include, if not specifically limited to~~, ultraviolet rays (e.g., i-ray), far ultraviolet rays (e.g.~~, KrF or ArF excimer laser~~)~~, X-rays, or charged particle rays (e.g., electron beam), which can be selected depending on the type of the photoacid generator employed.

On page 9, the paragraph beginning at line 18 has been amended as follows:

To a 500ml flask were added 60g of methylnorbornanemethoxymethyl methacrylate, 56g of ~~isobronyl~~ isobornyl methacrylate, 10g of AIBN and 232g of dioxane. Nitrogen gas was introduced into the reactor to replace oxygen in the reactor with nitrogen and the reactor was then heated to 70 °C with stirring for 2 hours. The reaction mixture was kept for 2 hours and the reactor was cooled to the room temperature. Subsequently, the polymer product was precipitated in an excess of methanol. The precipitate thus formed was filtered, washed and dried to yield a polymer represented by the following formula 4.

On page 10, the paragraph beginning at line 6 has been amended as follows:

The procedures were performed in the same manner as described in synthesis example 1, except for using 60g of methylnorbornanemethoxymethyl methacrylate, 45g of ~~isobronyl~~ isobornyl methacrylate, 16g of hydroxyethyl methacrylate, 11g of AIBN and 222g of dioxane to yield a polymer represented by the following formula 5.

On page 10, the paragraph beginning at line 14 has been amended as follows:

The procedures were performed in the same manner as described in synthesis example 1, except for using 60g of methylnorbornanemethoxymethyl methacrylate, 45g of ~~isobronyl~~ isobornyl methacrylate, 15g of cyclohexyl vinyl ether, 10g of AIBN and 240g of dioxane to yield a polymer represented by the following formula 6.

On page 11, the paragraph beginning at line 5 has been amended as follows:

The procedures were performed in the same manner as described in synthesis example 1, except for using 36g of methylnorbornanemethoxymethyl methacrylate, 45g of ~~isobronyl~~ isobornyl methacrylate, 23g of methyladamanthyl methacrylate, 5g of methacrylic acid, 10g of AIBN and 228g of dioxane to yield a polymer represented by the following formula 7.

On page 11, the paragraph beginning at line 14 has been amended as follows:

The procedures were performed in the same manner as described in synthesis example 1, except for using 36g of methylnorbornanemethoxymethyl methacrylate, 45g of ~~isobronyl~~ isobornyl methacrylate, 86g of norbornene, 5g of methacrylic acid, 10g of AIBN and 228g of dioxane to yield a polymer represented by the following formula 8.

On page 13, the paragraph beginning at line 23 has been amended as follows:

As described above, the present invention provides a novel polymer comprising an alkoxyalkyl acrylate monomer and an acrylate monomer having an alicyclic group, and a novel resist composition comprising the novel polymer and a photoacid generator to allow formation of a photoresist pattern, which may be exposed to ~~ultraviolet rays such as~~ KrF or ArF excimer laser and show reduced edge roughness, low dependency on and good adhesion to substrate, high transparency in the wavelength range of the ultraviolet region, high resistance to dry etching, and excellencies in sensitivity, resolution and developability.

In the Abstract:

The abstract has been amended as follows:

Disclosed is a polymer for use in a chemically amplified resist, a resist composition including such a polymer is suitable for use in a chemically amplified resist, which is sensitive to ~~far ultraviolet rays such as~~ KrF or ArF excimer laser and forms a photoresist pattern having low dependence on and good adhesion to substrate, high transparency in the wavelength range of the above radiation, strong resistance to dry etching, and excellencies in sensitivity, resolution and developability. The resist composition can have a stronger etching resistance with a maximized content of unsaturated aliphatic ring in the polymer and a reduced edge roughness of the photoresist pattern with an alkoxyalkyl acrylate monomer employed.